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**THE MESSAGE FRAMING OF HEALTH COMMUNICATIONS : HOW TO ELICIT  
HIGHER INTENTION TO GET AN ANNUAL PAP TEST ?**

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# **The message framing of health communications: How to elicit higher intention to get an annual Pap test?**

## **Abstract**

**In an online experiment, women (N=209) were randomly exposed to a pamphlet promoting Pap test. The pamphlet was either *gain-* or *loss-framed* and emphasized either the *prevention* or *detection* function of the Pap. We hypothesized that the fit between framing and function (i.e. gain-prevention and loss-detection) will result in higher intention to follow the recommendation. Moreover, we predicted that under the non-fit condition (i.e. gain-detection and loss-prevention); people higher in perceived vulnerability will have higher intention to follow the recommendation. Analyses revealed that our hypotheses were partially supported.**

## **Keywords**

*Marketing of health, health communication, message framing*

## **Track 1**

*Advertising, Promotion and Marketing Communication*

## Introduction

In our modern society, individual health and well being are major concerns. In the 20<sup>th</sup> century people mainly died from incurable infections. Nowadays however, mortality is more often linked to strokes, cancer or AIDS (Fischer 2005, Bruchon-Schweitzer 2002), that is to say from “avoidable” pathologies resulting from “*health-impairing habits*” (Matarazzo and *al.* 1984). It is therefore not surprising that researchers from various social and human sciences disciplines have started to focus their attention and research on health behaviors and their antecedents. Regarding the field of public service, as Moorman (2002 p.157) said “*consumer research has immense potential to contribute to the study of health*” even if at the present time marketing articles related to health remain limited (Moorman and Matulich 1993). The lack of insight in marketing draws our attention and interest to the study of health communications. According to Gerend and Shepherd (2007, p.745) “*health communications play an important role in shaping people’s decision to engage in a particular behavior*”. As a result it is important to understand those attention processes that can be used in order to make health communications more efficient. For this purpose, the “*framing effect*” concept (Tversky and Kahneman 1981, 1986) because of its potential account in the effectiveness of health communications (Meyerowitz and Chaiken 1987, Rothman and *al.* 1993), struck us as particularly interesting.

## 1. Conceptual Background And Hypotheses

### 1.1. Framing and health messages

Three decades ago, Rogers (1975) highlighted the interest of communicating the consequences (desirable or undesirable) related to the behavior targeted in a communication. Moreover, it seems that the verbal formalization of a health message associated with a recommendation suggesting a specific behavior could be one of the reasons for a communication’s effectiveness (Meyerowitz and Chaiken 1987, Rothman and *al.* 1993). We consider the question of verbal formalization of the message using the “*framing effect*” concept developed by Tversky and Kahneman (1981, 1986) in the “*prospect theory*” (Kahneman and Tversky 1979, Tversky and Kahneman 1981, 1986). Previous studies on the framing effect within health communications reveal mixed results. Some of them underline the effectiveness of positively framed messages (Rothman and *al.* 1993) whereas others (Banks and *al.* 1995, Block and Keller 1995) report similar findings for negatively framed messages. This mixed results led researchers to understand under which conditions gain- and loss-framed messages are more efficient.

### 1.2. Prevention and detection behaviors : the behavior function

To date, the main explanation<sup>1</sup> for predicting which framing will result in higher intention to complain is the taxonomy provided by Rothman and Salovey (1997). According to them, gain-framed messages will be more efficient in promoting prevention behaviors whereas loss-

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<sup>1</sup> Even if the way in which people construe a health behavior is a reliable heuristic for understanding which framing will be more efficient, a new hypothesis regarding people’s “*dispositional inclination to think about the decision they face in terms of gain or losses*” (Rothman and *al.* In press) has risen. This hypothesis is based on the Regulatory Focus Theory (Higgins 2000) and predicts that people could be classified as “promoters” or “preventers”. Promoters seem to be more persuaded by gain-framed messages and preventers by loss-framed ones (Rothman and *al.* In press).

framed messages will be more efficient in promoting detection behaviors. Because detection behaviors could result in the discovery of illness, they are viewed as more risky than prevention behaviors which are mainly taken to maintain a current health status (Rothman and *al.* 1993). As a result, “*the function served by a health behavior can be a reliable heuristic for whether people construe a behavior as a relatively risky or safe course of action*” (Rothman and *al.* 2006 p.205). Even if this rule has received some supports in the literature, the “*new generation of framing research*” (Latimer and *al.* 2007) are seeking to specify “*the optimal conditions for using gain-and loss-framed messages, looking beyond categories such as prevention versus detection*” (Latimer and *al.* 2007). Some researchers looked at the individual perception of the function served by the behavior promoted. This implied that the representation an individual has about a behavior is more predictive than the category this behavior belongs. This recent hypothesis has received partial supports in the literature (Rothman and *al.* 1999, Rivers and *al.* 2005). We thus wanted to test this hypothesis so; we predicted that fitting message framing with perceived behavior function will result in greater intention to follow the recommendation.

### 1.3. *The moderation of perceived vulnerability*

Communication effectiveness depends on the transformation of an objective statement (the message) into a subjective interpretation (the mental representation of this input). As a result, we were interested in understanding how perceived vulnerability (i.e. the perceived likelihood to live the undesirable consequences embedded in the message) could moderate the interaction between message framing and behavior function on intention to follow the recommendation. This hypothesis has not been tested in the literature but, perceived vulnerability is a central construct in most health models (Rosentsock 1974; Rogers 1975). We predicted that under the non-fit conditions between message framing and behavior function, participants with high perceived vulnerability will have higher intention to follow the recommendation.

## 2. Method

### 2.1. *Experimental Design*

The present experiment was run as a full factorial between-subject with two levels of framing (gain *vs* loss) and two levels of function (prevention *vs* detection). Rivers and *al.* (2005) reported that they successfully manipulated Pap test as a *prevention* and *detection* behavior in their experiment. Moreover, Pap test is successful in checking changes in the cervix that could result in a cervical cancer. We thus decided to recommend an annual Pap in our experiment. Four two-page pamphlets were created (table 1). Each pamphlet presented Pap as a prevention or detection behavior. Depending on the experimental condition, pamphlet also presented either the benefits attained in getting an annual Pap (gain condition) or the benefits non-attained in not getting an annual Pap (loss condition).

**Table 1 : Samples of the information written in the four message framing and behavior function conditions**

<i>Message framing and behavior function manipulations</i>	<i>Samples</i>
Gain-Prevention	Getting an annual Pap Smear is a smart health decision [...] Preventing abnormal cells can save your life!
Gain-Detection	Getting an annual Pap test is a smart health

	decision [...] Detecting abnormal cells can save your life!
Loss-Prevention	Not getting an annual Pap Smear is a not smart health decision [...] Not preventing abnormal cells can cost you your life!
Loss-Detection	Not getting an annual Pap test is a not smart health decision [...] Not detecting abnormal cells can cost you your life!

## 2.2. Procedure

The sample consisted in 209 females who were at least 18 years old ( $M_{age}=35, 76$ ). They volunteered to participate in this online experiment programmed and hosted by Qualtrics (qualtrics.com). Yale School of Management Elab (www.elab.som.yale.edu) recruited the online panel participants during 3 days on July 2009. After having read a consent form and having given their consent to participate in the experiment, participants were randomly assigned to 1 of the 4 conditions created by framing (gain vs loss) and function (prevention vs detection) treatments. They were exposed to the corresponding pamphlet and were asked to read it. Immediately after, they completed an online questionnaire that assessed manipulations check, intention to follow the recommendation, perceived vulnerability, feeling of fear, stimulus informativeness and demographics. Finally, participants were thanked and were told that their email address was automatically entered into a drawing, with a 1-in-25 chance of winning a \$20 amazon.com gift card.

## 3. Results

### 3.1. Preliminary analyses

#### *Check on confounding variables*

Since we strove to create pamphlets equivalents in informativeness value, we asked participants to rate *stimulus informativeness* to confirm that the different pamphlets were equal. We measured *stimulus informativeness* with eight 7-points semantic differential scales (Cox and Cox 2001). To prevent the possibility that the treatments elicited different levels of fear that may account for differences in our analyses, we also explored the relationship between framing/function and *feeling of fear*. We thus measure *feeling of fear* to ensure that the reported effects were due to our manipulations and not to this variable. To assess *feeling of fear*, we asked participants to rate 7-points semantic differential scales (Block and Keller, 1995). Factor analyses were performed on these confounding variables since they consisted on eight (stimulus informativeness) and four (feeling of fear) scales. For the *stimulus informativeness* scale, items loaded on a single factor and formed a reliable scale ( $\alpha = .96$ ). Analysis revealed that on the *feeling of fear scale* one item had to be removed (restful/excited). The 3 final items loaded on a single factor and also formed a reliable scale ( $\alpha = 0, 84$ ). As a result, for both scales, items were averaged to form an index. As expected, ANOVA on stimulus informativeness reported that neither the framing nor the function or the interaction was significant (all  $p_s > 0, 05$ ). Stimulus informativeness did not differ across the pamphlets. However, for feeling of fear, ANOVA indicated a significant main effect for framing ( $F(1,205) = 4, 269$ ;  $p < 0.05$ ) and function ( $F(1,205) = 6, 235$ ;  $p < 0.05$ ). To avoid for competing explanations we included feeling of fear as a covariable for the following analyses.

### *Manipulations check*

To verify that participants perceived a distinction between message framing conditions, we used 2 items to check the message framing manipulation. On the first item, ANOVA revealed a main effect of message framing ( $F(1,208) = 43,727$ ;  $p < 0,001$ ). Participants in the gain-framed conditions felt that the pamphlet were mostly about the good things that could happen if they get an annual Pap ( $M_{gain} = 3,67$ ;  $M_{loss} = 2,75$ ). A main effect of framing also appeared on the second item ( $F(1,208) = 73,886$ ;  $p < 0,001$ ). Participants in the loss-framed conditions felt that the pamphlet were mostly about the bad things that could happen if they do not get an annual Pap ( $M_{loss} = 3,69$ ;  $M_{gain} = 2,60$ ). We also intended to manipulate behavior function as *prevention* or *detection*. To check for this, we used 2 items from Rivers and al. (2005). ANOVA revealed a main effect of function on the first ( $F(1,208) = 22,004$ ;  $p < 0,001$ ) and second item ( $F(1,208) = 11,384$ ;  $p = 0,001$ ). Participants in the prevention conditions indicated that that according to pamphlet, getting a yearly Pap helps to prevent the development of cervical cancer ( $M_{prevention} = 4,10$ ;  $M_{detection} = 3,40$ ). Participants in the detection conditions indicated that that according to pamphlet, getting a yearly Pap helps to detect the development of cervical cancer ( $M_{detection} = 4,55$ ;  $M_{prevention} = 4,19$ ). Taken together, these results confirm that message framing and behavior function were manipulated successfully. As a result, all the data were analyzed as a 2 (framing) X 2 (function) factorial design.

### *3.2. Effects of message framing and perceived behavior function on intention to follow the recommendation*

Analysis only revealed a significant framing by function interaction ( $F(1,204) = 5,132$ ,  $p < 0,05$ ). ANOVA showed a significant simple main effect of function only at the loss level of framing ( $F(1,107) = 7,823$ ;  $p < 0,05$ ). Intention to get an annual Pap was higher when the behavior was described as a detection one ( $M_{detection} = 4,74$ ;  $M_{prevention} = 4,33$ ). Contrary to our prediction, perceived behavior function had no effect at the gain level of framing ( $F(1,98) = 0,638$ ; NS). When the message highlighted the undesirable consequences that could happen by not getting an annual Pap, intention to get a Pap is higher when the behavior is described as a detection one. Thus, our first hypothesis is partially supported.

### *3.3. The moderation of perceived vulnerability*

Our second hypothesis predicted that under conditions of non-fit (gain-detection and loss-prevention), high perceived vulnerability will lead to higher intention to follow the recommendation. To test this hypothesis, we used the median split. We then ran a three-way ANOVA between framing (gain vs loss), function (prevention vs detection) and perceived vulnerability (low vs high). ANOVA indicated that framing and function had no effects on intention ( $F_{framing}(1,208) = 1,653$ ; NS and  $F_{function}(1,208) = 0,746$ ; NS) but, the second order interaction between the three factors was significant ( $F_{interaction}(1,208) = 11,068$ ,  $p = 0,001$ ). Deeper analyses revealed that in the gain-prevention condition, perceived vulnerability had no effect on intention ( $F(1,46) = 0,29$ ; NS) whereas perceived vulnerability had an effect in the gain-detection condition ( $F(1,48) = 10,091$ ;  $p < 0,05$ ). When the message was gain-framed and described Pap as a detection behavior, participants that were higher on perceived vulnerability reported higher intention to follow the recommended behavior ( $M_{high\ perceived\ vulnerability} = 4,70$ ;  $M_{low\ perceived\ vulnerability} = 3,86$ ). The same pattern of results was found at the loss level of framing. ANOVAs indicated that in the loss-detection condition perceived vulnerability had no effect on intention ( $F(1,54) = 1,032$ ; NS) whereas perceived vulnerability had an effect in the loss-prevention condition ( $F(1,49) = 2,107$ ;  $p < 0,05$ ).

When the message is loss-framed and described Pap as a prevention behavior, participants that were higher on perceived vulnerability reported higher intention to follow the recommended behavior ( $M_{high\ perceived\ vulnerability} = 4,525$ ;  $M_{low\ perceived\ vulnerability} = 3,920$ ). These results indicated that as predicted in our second hypothesis, under the non-fit conditions participants high in perceived vulnerability had higher intention to follow the recommendation.

## Discussion

One of the goals of this study was to replicate the findings regarding the fit between message framing (gain vs loss) and perceived behavior function (prevention vs detection). We hypothesized that fitting message framing with perceived behavior function (i.e. gain-framed messages for prevention behaviors and loss-framed messages for detection behaviors) will result in higher intention to follow the recommended behavior. We found that the fit resulted in higher intention only when the message was loss-framed. This result is important for two reasons. First, contrary to the two studies (Rothman and al. 1999; Rivers and al. 2005) that permitted to test this hypothesis, our results are statistically significant at the conventional level<sup>2</sup>. Second, we only found that the fit between message framing and perceived behavior function led to higher intention to follow the recommended behavior when the message is loss-framed. This result seems to mean that the fit is important when one decides to use loss-framed messages. Loss-framed messages should be employed only for detection behaviors (i.e. screening exams). The second goal of this research was to explore the potential moderating role of perceived vulnerability under the non-fit conditions (gain-detection and loss-prevention). As predicted we found that under these two conditions, participants that felt themselves vulnerable (e.g. participants that thought that they could have a cervical cancer in their life) had higher intention to get an annual Pap. Because of the exploratory nature of our results, others studies are needed to replicate and understand how perceived vulnerability affects intention to follow the recommendation under the non-fit conditions. As others researchers interested by the framing of health messages, on the base of prospect theory (Kahneman and Tversky 1979, Tversky and Kahneman 1981, 1986) we contributed to identify a set of rules under which message framing improve persuasion. Even if prospect theory is a relevant framework for predicting the context under which one frame will be more efficient, it does not provide explanation of the underlying psychological processes responsible for the effects (Salovey and Wegner 2004). Like Rothman and al. (1999), we proposed that future studies should explore how framed information influence behavior.

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<sup>2</sup> Rothman and al. (1999) found an interaction between message framing and behavior function that was marginally significant ( $p < 0.07$ ). The same pattern of results was present in the research conducted by Rivers and al. (2005). The interaction on intention to follow the recommended behavior approached significance ( $p = .06$ ).



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